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THE PLANT DISEASE REPORTER

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U.S. DEPARTMENT OF AGRICULTURE

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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WHEAT MOSAIC SURVEY IN ILLINOIS AND MISSOURI, AND NOTES ON OTHER WHEAT DISEASES

T. W. Bretz

Illinois. In company with Dr. Benjamin Koehler of the University of Illinois, a survey trip for the prevalence of the virus disease wheat mosaic was made during the week ending April 29 through Adams, Pike, Scott, Morgan, Greene, Jersey, Madison, St. Clair, Monroe, Randolph, Perry, Washington, Clinton and Bond Counties, Illinois. The disease was observed in all but 5 of these counties, namely Adams, Perry Greene, Clinton, and Bond. It has been observed, however, in the last-named in previous years. It is believed that no reports of the disease have previously been recorded for Jersey, St. Clair, Monroe, Randolph, and Washington Counties.

Approximately 90 fields were examined during the trip and evidence of mosaic infection was observed in about 38% of these. The affected fields appeared to be more frequent in the river bottom areas than in the uplands. The extent to which individual fields were affected was extremely variable. In some instances, mosaic symptoms were in evidence throughout the fields. In other fields, the disease seemed definitely limited to certain areas of varying size, involving anywhere from a small fraction of the total area to 2/3 of the area in individual cases. In general, the symptoms of mosaic were not strikingly evident and could be detected only upon close examination. This might possibly be accounted for by the widespread use of rather resistant varieties of wheat, although the weather conditions of the past month have been particularly unfavorable for the expression of marked mosaic symptoms, even in susceptible varieties. However, in some instances the infection was so intense as to result in a marked yellowing of the affected leaves and the affected areas were easily distinguishable from a distance. In a few cases extensive commercial damage was inevitable. A 40-acre field in Morgan County was uniformly infected, showing severe yellowing and dwarfing of the plants. It was estimated that even with favorable weather conditions prevailing until harvest, the reduction in yield would probably be about 50%. In Monroe County near Valmeyer, several fields showed areas of varying size in which the plants were severely damaged, and one 28-acre field showed at least a 50% kill due to mosaic and a further reduction in yield resulting from less seriously affected plants. Although the number of fields in which serious damage had occurred was relatively small, the large number of fields showing light infection presents a potentially serious problem to the wheat growers over a rather extensive area in Illinois. Undoubtedly even in the lightly affected fields a certain reduction in yield will occur.

Throughout the area, speckled leaf blotch (Septoria tritici) infection was observed. Vigorous development of this disease was most evident in the southern counties. Leaf rust (Puccinia triticina) [P. rubigo-vera var. tritici] was not observed in any of the fields.

Missouri. Since wheat mosaic is known to be quite prevalent in Illinois in certain counties bordering the Mississippi River, but has never been

reported from Missouri, a survey of wheat fields in certain Eastern Missouri counties was made during the week ending May 6 to determine whether the disease occurs in this area. It was considered probable that mosaic does occur in this region and that it had not been recognized by the growers and (or) had never become destructive enough to have been called to the attention of the State pathologists. The occurrence of the disease in Missouri was substantiated by this survey, which included an inspection of fields in Boone, Callaway, Montgomery, Warren, St. Charles, Lincoln, Pike, Ralls, Monroe, and Randolph Counties.

The first evidence of the disease, in traveling east from Columbia, was in Warren County, approximately one mile east of the Montgomery County line. Symptoms very suggestive of mild mosaic infection were noted in plants scattered throughout the field, but positive identification was impossible and the case was recorded as doubtful. However in a small, one-acre, creek-bottom field about 5 miles east of Warrenton, unmistakable mosaic infection was observed in plants scattered through the field. The infection was light, indicating, perhaps, a somewhat resistant variety of wheat and there appeared to be no appreciable damage resulting. One other small field in this county, 1/2 mile east of Wright City, showed plants scattered through the field with symptoms suggestive of mosaic, but these were not distinct enough to make a positive identification. Mosaic appeared to be quite widespread in St. Charles County. Unquestionable infection was observed in the western portion of the county near Foristel; in the region between St. Peters and St. Charles; in the Missouri River bottoms north and east of St. Charles; and near the Lincoln County border. It was most prevalent and the infections were most vigorous in the bottoms near St. Charles. An extensive survey of this region, however, was not possible owing to the flooded condition of a large portion of these lowlands. The small acreage that was accessible, however, indicated that mosaic is very prevalent in these river bottom lands. In no instance was the infection severe enough to account for serious damage, suggesting that the varieties of wheat grown in this area are somewhat resistant to the disease. Mosaic-infected fields were also observed in Lincoln, Pike and Ralls Counties, all of which border the Mississippi River. None was observed in Monroe, Randolph, Boone, Callaway, or Montgomery Counties.

Vigorous speckled leaf blotch infection was noted in practically all of the fields examined. An average of at least 1/3 of the foliage showed one or more Septoria lesions and approximately 25% of the affected leaves were dead or so nearly dead as to be functionless. It is impossible to estimate the probable loss resulting from this infection, but should the cool, moist weather that has prevailed to date continue, the disease is very likely to result in some reduction in yield. No intensive search was made for leaf rust infection and only one leaf pustule was noted during the entire survey. This would indicate that there has been very little increase in the amount of leaf rust infection to date (May 5 date of observation).

Flood damage has been extensive in the State and it has been estimated by various observers that approximately 125,000 acres of winter wheat have been destroyed by flood waters.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

CONDITION OF WINTER WHEAT IN NEW YORK

Leon J. Tyler

Winter wheat growing in the Finger Lakes region of New York was examined during the week ending May 6. Fifty fields located in the following counties were entered: Tompkins, Cayuga, Southern Wayne, Seneca, Ontario, and Northern Yates.

In general, winter wheat in this region is in good condition. In 90% of the fields the stands are excellent, tillering being good, with very little winter killing of plants. In the remainder of the fields entered, some located along the eastern side of Lake Cayuga and some in northern Yates and Northern Seneca Counties, the stands were rather thin and the fields spotty. It appeared that insufficient moisture after planting and poor soil were important factors responsible for thin spots in some of the latter fields. In other fields the thin spots could be attributed to low, waterlogged areas and to lack of sufficient snow coverage during the past winter.

The range in height of plants at the present time is from about 4 to 8 inches. In 3 different fields, it was noted that the lower internode of some plants had elongated appreciably.

Wheat diseases noted were few. The speckled leaf blotch disease (caused by Septoria tritici) was the most important from the standpoint of prevalence and severity. This wheat disease was found in all fields entered. The range in prevalence was from 5 to 100% of the tillers with most fields exhibiting 30 to 40% of the tillers affected. Five to 25% of the leaves of affected plants contained from 1 to 3 lesions each. The lesions, which exhibited pycnidia of the fungus, were always on the lowermost leaves and probably the result of infection in the late fall of 1943. Many of the affected leaves were dead while others were partly so; pycnidia were abundant on the dead tissue. Small lesions on leaves formed this spring indicated that some primary infection has occurred this spring.

Powdery mildew (caused by Erysiphe graminis) was noted in 10 of 50 fields but only the barest trace was noted. Overwintered perithecia were abundant on old stubble along the borders of some fields.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

OTHER REPORTS ON DISEASES OF CEREAL CROPS

VIRGINIA: On April 23 and 24, several grain fields were visited between Chatham and Norfolk. Early barley fields were heading and loose smut (Ustilago nuda) was observed at levels higher than 4% in 3 of 8 fields examined. In one case from 10 to 12% of the heads were smutted in 20 acres of barley. Powdery mildew (Erysiphe graminis) was prevalent throughout Virginia and the lower leaves of barley were severely affected. Leaf and stem rusts were not observed. On wheat a trace of powdery mildew was found in one field. In the few headed oat fields observed smut was not found.

Sweet corn in a small field at the Virginia Truck Experiment Station at Norfolk, planted about April 10, has been plowed up owing to failure to germinate, according to Dr. G. K. Parris, the failure resulting from planting untreated seed in cold soil. -- Carlton F. Taylor, Emergency Plant Disease Prevention Project.

OAT SMUT IN MISSISSIPPI: Loose smut (Ustilago avenae) varied from a trace to over 25% in many fields throughout Hinds, Copiah, Jefferson Davis, and Marion Counties, visited during the week April 24 to 29. In one field in Marion County where no smut was found, the seed had been treated with Semesan, according to the grower. -- Douglas C. Bain, Emergency Plant Disease Prevention Project.

TEXAS: During April, loose smut of oats (Ustilago avenae) has been observed near Jacksonville and at College Station. Approximately 1% of the plants were affected. In one field just south of McKinney during the last week of April, about 10% of the oats were showing covered smut (U. kolleri], and a trace of loose smut was also present. In an adjacent field separated only by a fence, practically no smut was seen.

Near Temple leaf rusts of oats and wheat [Puccinia coronata, P. rubigo-vera var. tritici] were present on maturing plants. No stem rust was seen. On barley, spot blotch (Helminthosporium sativum) was common on the lower leaves, but damage was slight. Leaf rust [P. anomala] of barley was noted occasionally. -- George E. Altstatt, Emergency Plant Disease Prevention Project.

DISEASES REPORTED ON LEGUMINOUS FORAGE AND COVER CROPS

VIRGINIA AND WEST VIRGINIA: Alfalfa -- Crown rot (Sclerotinia trifoliorum) was observed in almost all of the fields examined between Williamsburg, Virginia, and Martinsburg, West Virginia, April 19 to 29. Sclerotia were found on many of the plants. In most cases the percentage of infection was low and had not thinned the stand to a critical point. Near Williamsburg 10% of the plants had been killed in a first-year stand. In Fauquier County, Virginia, both crown rot and bacterial wilt [Corynebacterium insidiosum] were found in one large field, April 27. In 1/3 of this field an old alfalfa stand had been so reduced that it had been plowed during the past winter, and the next section, 2 or 3 years old, contained approximately 5% dying plants.

Leaf spot (Pseudopeziza medicaginis) was abundant on the lower leaves of alfalfa near Williamsburg on April 25.

Crimson Clover -- During January crimson clover as a winter cover crop in a flower-bed area in Petersburg, Virginia, was injured by Sclerotinia trifoliorum. All plants in approximately 80% of the area in about 600 square feet of beds had been killed and sclerotia were abundant.

White Clover -- Powdery mildew [Erysiphe polygoni] was present in slight amounts in plots of Kentish white clover near Williamsburg. -- Carlton F. Taylor, Emergency Plant Disease Prevention Project.

KENTUCKY AND TENNESSEE: In the 3 upper east Tennessee counties of Washington, Greene, and Hamblen, only one case in each county of crown rot (Sclerotinia trifoliorum) on fall-seeded alfalfa has been reported to the county agent's office. In the latter county an additional case was reported on crimson clover. Of 62 acres of fall-seeded alfalfa seen on the last trip in upper east Tennessee, 23 acres had a small amount of crown rot.

Considerable amounts of winter injury, leaf spots, and blackstem (Ascochyta imperfecta) have been observed recently in eastern Tennessee and eastern Kentucky. Dr. W. W. Ray found, on specimens submitted to him from near Knoxville, some of the blackstem fungus, a greater amount of Pseudoplea trifolii leaf spot, and some Peronospora trifoliorum. Downy mildew has been seen in some amount in several fields. -- R. A. Hyre, Emergency Plant Disease Prevention Project. April 17 - 29.

MISSISSIPPI AND LOUISIANA: Sooty mold (Cymadothea trifolii) and leaf spot (Cercospora zebrina) were found to be common on lower leaves of crimson clover throughout Hinds, Copiah, Jefferson Davis, and Marion Counties, in Mississippi, April 24 to 29.

Powdery mildew (Erysiphe polygoni) was common on Trifolium dubium in and around Hammond (Tangipahoa Parish) and Baton Rouge (East Baton Rouge Parish) in southern Louisiana, May 1 to 6. -- Douglas C. Bain, Emergency Plant Disease Prevention Project.

OHIO: Many fields of clover were examined, April 24 to 29, in southern Ohio for leaf diseases and damping-off. Very little damage was observed. One field was killed out in spots by standing water. Another showed an occasional plant killed by some undetermined damping-off fungus. -- M. R. Harris, Emergency Plant Disease Prevention Project.

SNAKE RIVER VALLEY IN IDAHO AND OREGON: May 5 and 6 were spent in the area from Parma to Payette in western Idaho and from Ontario to Adrian in eastern Oregon. Alfalfa fields showed a wide range of conditions. Downy mildew [Peronospora trifoliorum] was widespread and probably will cause considerable damage. Leaf spot [Pseudopeziza medicaginis] was just starting to appear. Bacterial wilt [Corynebacterium insidiosum] probably was causing reduction in stand, amounting in some cases to complete loss of the fields. A very wide range in size and condition of the plants was noted in most fields examined. Mosaic or other virus diseases were commonly present but not severe. -- Earle C. Blodgett, Emergency Plant Disease Prevention Project.

DISEASES IN TOBACCO SEEDBEDS IN TENNESSEE

R. A. Hyre

From April 18 to 20, 17 burley tobacco beds were observed for leafspot diseases between Knoxville and Chattanooga. The largest plants found were in one bed with leaves from the size of a quarter to a half dollar. Most

of the plants had leaves of less than dime size. No leafspot or other diseases were found.

From April 24 to 28 burley seedbeds were observed between Knoxville and Johnson City, Tennessee, with emphasis on the Greeneville area. Eighty-six beds were observed. The plants varied in size from just emerging up to leaves 3 inches and greater in length. Most of the plants had leaves dime size or less. Practically all of the beds were on new sites and were burned over with brush although a kerosene burner was used in a few cases. In a few areas an increasing practice is to put the canvas flush with the ground, supported by a little straw.

Seven percent of the beds had wildfire (Pseudomonas tabaci), rather severe in several cases. Seven percent had angular leafspot (Pseudomonas angulata), but different beds from those with wildfire. About 4% of the beds showed from mild to severe fertilizer burn of the plants. About 7% of the beds to date had been treated with bordeaux mixture for the control of leafspots. It was too early, of course, to get the seedbed leafspot picture for the year.

No blue mold was found. A number of cases that farmers reported as blue mold were found to be moss growing on the ground. In Greene County a considerable effort is being made (including a project by a service club) to get farmers to spray for the leafspots and blue mold control.

The survey of tobacco seedbeds was continued in central Tennessee, May 2 to 6 centering around Cookeville, Carthage, Gallatin, Springfield and Columbia. This is largely a burley tobacco area except around Springfield where dark fired tobacco is grown.

Seventy-four beds were observed with leaves the size of a quarter or larger, and a dozen or so beds with smaller plants. In only one case encountered were plants being transplanted to the field. In general the plants were 10 days or more later than usual.

Wildfire (Pseudomonas tabaci) was found in 10 or about 14% of the beds. Three beds were totally destroyed and others soon would be. The loss to date would be less than 5%, however, as these were all smaller beds, usually representing an acre or two allotment each. They were located in mountainous country near Cookeville and southwest of Columbia. Reports of farmers would indicate that many other beds in these same general areas have wildfire. Thus a sizable outbreak of this disease this year is indicated, although the beds of the larger growers in the more level open country do not have wildfire so far.

Of the beds with wildfire 7 were on new sites and 2 were on old bed sites. Of all the beds seen 20% were treated with bordeaux mixture but on the beds with wildfire the treatment was made after the disease was present.

Traces of angular leafspot (Pseudomonas angulata) occurred in a number of beds but as yet the disease is of little importance.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

STONE FRUIT DISEASES IN CENTRAL CALIFORNIA

Horace L. Barnett

RESULTS OF THE SURVEY FOR THE BLOSSOM BLIGHT PHASE OF BROWN ROT: This season there has been comparatively little blossom blight of stone fruits due to Sclerotinia [Monilinia] laxa and S. [M.] fructicola. Almonds and apricots were the only fruits generally infected. The blossom blight on apricot was confined mainly to a few early blossoms. The later varieties of almonds mostly escaped infection. The Drake variety showed heavy infection in some localities. No blossom infection of peach was found in any of the large peach growing districts in the Sacramento Valley or the San Joaquin Valley. Only a few infected blossoms of prune were found in the region of Sonoma and Napa Counties and none was found in the Santa Clara Valley, the largest prune growing section of the State. The later-flowered varieties of cherries were found to be lightly infected in Sonoma and Santa Clara Counties.

A brief summary of the weather conditions during the flowering periods may be helpful in understanding the brown rot situation this season. Rains were frequent and general during the last part of February and the first few days of March. On the first of March the earlier varieties of almonds were almost in full bloom. Some apricot blossoms were also open at this time. No precipitation fell in this area during the remainder of March. Only light infrequent showers fell during April.

The collections of almond and apricot flowers represent numerous orchards throughout the central part of California. Most of the collections from almond were made in the almond districts of Brentwood and Oakley in Contra Costa County, Oakdale in Stanislaus and San Joaquin Counties, Paso Robles in San Luis Obispo County, Chico in Butte County, and Arbuckle in Colusa County. Likewise, most of the collections of blighted apricot blossoms were made in the important apricot districts of Alameda, Contra Costa, and Santa Clara Counties.

The results of the isolations from the blighted blossoms are given in the accompanying table.

All cultures were obtained by incubating the infected blossoms and transferring conidia from sporodochia to tubes of potato-dextrose agar. One culture was made from each blighted blossom. The cultural characteristics used to identify Sclerotinia laxa and S. fructicola were those described by Hewitt and Leach (Phytopath. 29:337-351. 1939).

All blossom infection of almond and most of the infection of apricot was found to be due to S. laxa. S. fructicola was isolated from only 3 apricot blossoms collected near Campbell in Santa Clara County. Other collections of apricot in the same region yielded S. laxa. S. laxa was isolated from 4 prune flowers from one orchard while S. fructicola was isolated from 2 prune flowers from a nearby orchard in Sonoma County. The fact that only S. laxa was isolated from cherry flowers collected in Santa Clara County while cherry blossoms from Sonoma County yielded only 1 culture of S. laxa and 29 cultures of S. fructicola is interesting and difficult to explain.

Table 1. Summary of the cultural work on the blossom blight phase of brown rot (Sclerotinia laxa and S. fructicola) of stone fruits in central California.

County	Host and number of cultures of each species obtained									
	Almond	Apricot		Cherry		Peach	Plum & Prune	
	All S. laxa	S.laxa	S.fructicola	S.laxa	S.fructicola	All S.laxa	S. laxa	S.fructicola
Alameda		25					15	
Contra Costa	25	11				5		
Santa Clara	9	15	3	26		2		
Monterey	18	19						
San Luis Obispo	23							
San Joaquin	9							
Stanislaus	15							
Merced	6							
Sutter	3							
Butte	26							
Colusa	19	6						
Sonoma				1	29		4	2

Green Rot. Owing to unfavorable weather conditions green rot or jacket rot (Sclerotinia sclerotiorum) has been of no importance this season. Only a trace of this disease was found in 2 orchards. A few rotted fruits that yielded S. sclerotiorum were collected in Monterey County on April 11, and several rotted fruits were collected in one orchard near Los Gatos in Santa Clara County on April 22.

Rust on Almonds. Recently Mr. C. E. Scott, Extension Pathologist of the California Experiment Station, has had the opportunity to make additional observations on the almonds in the vicinity of King City in Monterey County. He reports finding recent rust (Tranzschelia pruni-spinosae) infection on the young almond leaves. This observation completes the evidence that the spring infection of young almond leaves in this district is initiated by the uredospores overwintering on old green leaves that remain on sucker shoots in the orchard. (See PDR 28(9):323. April 7, 1944).

EMERGENCY PLANT DISEASE PREVENTION PROJECT

OTHER REPORTS ON DISEASES OF FRUIT CROPS

DEVELOPMENT OF APPLE SCAB AND OTHER FRUIT DISEASE FUNGI IN NEW YORK (Reports from the Weekly News Letter for dates April 24 and May 1):

Apple Scab. D. H. Palmiter reports (May 1) that in Hudson Valley McIntosh apple leaf samples the percentage of perithecia of Venturia inaequalis with 50% colored ascospores ranged from 7 in leaves from Cokerton gathered April 21, and Glenco April 27, to 62 in a sample from Wappinger Ford April 27. In the laboratory, spore discharge ranged from 4% for the Glenco sample to 30% for leaves from Milton April 27. Leaves from southern Dutchess County discharged a few spores during the rain of April 23 to 24 at outside temperatures.

W. D. Mills reports (April 24) that in McIntosh leaf samples from Wayne, Orleans, and Niagara Counties in western New York, the percentage of perithecia with over half the ascospores colored varied from 19 in an Orleans County sample gathered in Albion April 18, to 55 in a sample taken from the southern edge of Wayne County on April 17. From a trace to light ascospore discharge occurred in one hour from all 4 samples from Orleans and Wayne Counties. Rains during the following week (May 1) induced a light ascospore discharge as evidenced by McIntosh leaf samples.

Cedar Rusts. Galls of Gymnosporangium juniperi-virginianae were reported discharging spores in Orange County, but those examined in Ulster and Dutchess Counties had only very short spore horns, according to D. H. Palmiter (May 1).

J. D. VanGeluwe reported quince rust (G. clavipes) cankers fruiting on April 19 in Orange County (April 24).

Pear Scab. According to D. H. Palmiter, on pear leaves gathered at Stuyvesant in the Hudson Valley, 62% of the perithecia of Venturia pyrina were in the early ascus stage, 16% contained colorless spores, in 6% at least half of the spores were colored. In the laboratory 5% of the perithecia discharged spores. (May 1).

Peach Brown Rot. Apothecia of Monilinia fructicola were first observed in Orange County on mummied fruits under peach trees, April 28, according to J. D. VanGeluwe (May 1).

DEVELOPMENT OF APPLE SCAB IN OHIO: In the extreme southern tip of Ohio, near Ironton, visited during the period April 24 to 29, lesions on apple leaves are developing that resemble those of apple scab. At Jackson, on April 26, lesions of scab on leaves of Rome Beauty and Golden Delicious developed to the point of making a definite diagnosis possible. In this section of the State the apple trees are in the petal-fall stage of development.

The Ohio Extension Service has been recording the spore discharge of Venturia inaequalis in the various apple-growing areas of the State this year. In the extreme southern areas ascospores were mature about April 1, and were discharged generally by April 27. In the southern counties just north of those farthest south, ascospores were mature about April 7, and discharge will continue until about May 4. In central Ohio, ascospore discharge began April 15 and is continuing. In northern Ohio spore discharge will occur as soon as the next rainy period begins.

The petal-fall spray is being applied in southern Ohio and will be applied in central Ohio during the week of May 8 to 13. In northern Ohio prebloom sprays are being applied.

On most apple varieties the bloom is fairly heavy. In a few isolated orchards the set is poor. Frost has not damaged the main crop so far but isolated orchards show light damage. There has been much rainfall in the State during the season thus far, but rainy periods have been spaced so that adequate sprays could be applied. -- M. R. Harris, Emergency Plant Disease Prevention Project.

PEAR LEAF SPOT IN MISSISSIPPI: In Pearl River County considerable defoliation is apparent in trees heavily infected with Fabraea maculata. -- Douglas C. Bain, Emergency Plant Disease Prevention Project. April 24-29.

DISEASES OF PEACH TREES IN EAST TEXAS: Peach trees examined in an orchard near Mineola were killed by Armillaria mellea. This fungus has been active in peach orchards this season, and has been seen at Tyler, Omah, and College Station, this month.

Peach leaf curl (Taphrina deformans) was observed at Mineola. -- George E. Altstatt, Emergency Plant Disease Prevention Project. Report for April.

CORYNEUM BLIGHT OF STONE FRUITS IN THE SNAKE RIVER VALLEY: Although the season was not far enough advanced for ideal conditions, some survey of orchards was made at Lewiston, Idaho, and Clarkston, Washington, April 18. Coryneum blight [Coryneum carpophilum] in these areas has been known for many years but usually is not a limiting factor in peach and apricot production. During this last season (1943) and 2 or 3 previous seasons, however, it has been increasingly prevalent, particularly the canker stage on peach twigs, cherry leaf and fruit infection, and apricot fruit spotting. Mr. John Keen, Horticultural Inspector at Clarkston, has observed the increase in damage and pointed out the close correlation with the more abundant rainfall of the past few seasons. In adjacent areas where rainfall limits wheat production and the yield was formerly 15 to 20 bushels, the yield has been 35 to 40 bushels per acre the last few seasons.

On sweet cherry trees nearly in full bloom, Coryneum blight lesions were noted on the new leaves. --Earle C. Blodgett, Emergency Plant Disease Prevention Project.

VERY FEW CITRUS DISEASES OBSERVED ON THE YUMA MESA OF ARIZONA: Approximately 1100 acres of grapefruit and 300 acres of oranges are planted on the Yuma Mesa. The acreage of lemons and limes is small but the former is being increased by one commercial company that plans to have approximately 500 acres of Lisbons. A majority of the plantings appear to have been given adequate care and nitrogen deficiency was not common. A few grapefruit groves showed very slight to slight iron deficiency. In one orange planting, very slight iron and zinc deficiencies were observed. Leaves in two grapefruit plantings had symptoms somewhat similar to those described for excess boron. An analysis of the leaves and irrigation water indicated boron could not be a factor. The injury in either grove was not more than slight. Thrips damage was not so common as in the Salt River

Valley. In no instance was the injury more than slight in either grapefruit or oranges. Some growers have and are spraying for thrips control. Psorosis A was observed on 1 tree in each of 3 grapefruit plantings. The injury varied from very slight to moderate. None of these growers was aware of the fact that this virus was present on the Yuma Mesa. Brown rot gummosis [Phytophthora sp.] and water spot were present in the Salt River Valley this past winter but neither was observed on the Yuma Mesa. -- William G. Hoyman, Emergency Plant Disease Prevention Project.

DISEASES OF CANE FRUITS IN EAST TEXAS: Blackberries showed a heavy infection of orange rust, Gymnoconia interstitialis [G. peckiana], which was attacking both last year's wood and the current season's growth. In some fields the infection ran as high as 60% of the plants, and in a few fields better than 70% of the plants showed rust. One isolated, well-cared-for field was completely free from orange rust. This rust was frequently seen on wild or escaped plants bordering commercial fields.

Wild dewberries in East Texas show varying amounts of leaf spot (Mycosphaerella rubi). This disease was not observed on blackberry at this time. -- George E. Altstatt, Emergency Plant Disease Prevention Project. Report for April.

STRAWBERRY LEAF SPOT IN VIRGINIA: According to Dr. G. K. Parris of the Virginia Truck Experiment Station, at Norfolk, leaf spot (probably Mycosphaerella fragariae) was severe on the foliage of 2 Tennessee varieties, but was rare in an adjacent planting of Blakemore. -- Carlton F. Taylor, Emergency Plant Disease Prevention Project

CONDITION OF STRAWBERRY PLANTINGS IN SOUTHERN OHIO: Plantings in southern Ohio near Ironton were inspected during the period April 24 to 29. Lawrence County in 1939 had an area of approximately 325 acres in strawberries; this has since dwindled to less than 100 acres. Most of the plantings are old and show killing due both to the drought of last fall and to excessive rainfall during the past few weeks. One planting of 1/2 acre was severely affected by leaf spot (Mycosphaerella fragariae). No red stele disease was found. -- M. R. Harris, Emergency Plant Disease Prevention Project.

CONDITION OF SEED POTATOES IN THE CONNECTICUT RIVER VALLEY OF MASSACHUSETTS AND CONNECTICUT

Robert C. Cassell

During the course of this survey, April 24-May 6, 166 lots of seed potatoes were examined on 72 farms (10 in Tolland County, Connecticut, and 62 in Hampden, Hampshire, and Franklin Counties, Massachusetts). The 166 lots of seed were representative of 50 sources (different growers). Of the 50 sources, 39 were from the State of Maine, 4 from New York, 2 from Vermont, 2 from Minnesota, 2 from the Dominion of Canada (British Columbia) and one was home-grown seed in Massachusetts.

Varietal representation in the 166 lots was as follows: Green Mountain 56, Katahdin 34, Chippewa 22, Irish Cobbler 19, Russet 19, Sebago 13, Sequoia 2, and Houma 1. Except for the one lot of home-grown seed, all were certified. Thirteen of the 165 lots of certified seed were also tuber-unit tested.

The following diseases were found in the survey:

Scab (Actinomyces scabies) was present in 69 (41.6%) of the 166 lots. Except for 2 cases scab existed only in trace to slight amounts. In 2 lots of certified seed, both from the same source, there was about 20% prevalence. Severity was from moderate to very severe and of the deep crater type lesions.

Rhizoctonia solani occurred in 83 (50%) of the lots. In 63 of the lots Rhizoctonia existed as traces to slight amounts. In the other 20 lots prevalence ranged from 5% to 85% with an average of 30.5%. In many of the 20 cases severity was moderate to very severe.

Late blight (Phytophthora infestans) was found in 16 (9.6%) of the lots. In all cases there was only a trace of blight, seldom over one or two blighted tubers to a bag where it occurred at all.

Silver scurf (Spondylocladium atrovirens) was found in 3 of the lots, in tuber-unit certified Chippewa and Katahdin, all grown by the same producer. In one lot there was only a trace, in another there was about 30% prevalence with severity slight, and in the third a prevalence of 50% to 60% with moderate severity.

Fusarium rot (Fusarium spp.) usually following bruises, was found in 4 cases. Only a trace was found in 3 of the lots. The fourth case, however, was quite serious. It involved 2 cars of certified tuber-unit Chippewas purchased in Connecticut from the Red River Valley area of Minnesota. Delivery was made the latter part of November. Recently it was found that Fusarium dry rot had set in at bruised places and as a result 75 barrels were picked out as culls and the remainder of the lot sold for use in the alcohol program.

Black leg (Erwinia atroseptica) [E. phytophthora] tuber rot was found as a trace in one lot.

Powdery scab (Spongospora subterranea) was also found as a trace in one lot.

Surface pitting (probably bacterial slimy rot) was found in 46 (27.7%) of the 166 lots. Twenty-nine were recorded as trace to slight amounts, 8 as moderate pitting and 9 as severe.

Net necrosis (leaf-roll virus) was found in 7 (9.3%) of the 75 lots of Green Mountain and Cobblers. Only a trace was found in any case.

Stem-end browning (cause unknown) was found in 47 (50%) of the 94 lots of Green Mountain, Cobbler, and Russets. Prevalence ranged from a trace (24 lots) to 55% with an average of 7.2% for the 47 lots.

Frost injury (non-parasitic) was found in 6 of the lots. Only a trace was present in each case.

Hollow heart (non-parasitic). Most lots could not be examined for hollow heart but where seed cutting was in process some check could be made. Twelve lots were found with some hollow heart. One lot of Cobblers had about 2% or 3% hollow tubers.

Bruises (mechanical injury) were present to some extent in practically

all lots. Twenty-three lots were found where bruising was serious enough to be of special concern.

Miscellaneous: In 5 lots the tubers were extremely dirty, muddy, or musty. Three lots were entirely too soft, making cutting very laborious. Five other lots were very disappointing to the buyer for one or more reasons. Tubers of larger than average size is a general complaint this year.

EMERGENCY PLANT DISEASE PREVENTION PROJECT.

POTATO STORAGE DISEASES IN IDAHO

Earle C. Blodgett

Conditions observed during earlier examination of stored potatoes are reported in PDR 28 (3): 97-100, February 1, 1944.

Western Idaho. Potatoes examined in storage cellars at Wilder February 14 showed considerable rot, due mostly to frost damage, but with some jelly end [cause apparently not definite; often attributed to Fusarium solani f. radicicola (F. javanicum var. radicicola)], and occasional "black rot" (cause not definitely determined). Two potato cellars near Homedale, February 15, showed some frost damage but very little rot otherwise. On February 16 potatoes were examined in one packing house and at the dehydrator at Payette. There was considerable jelly end on locally-grown tubers, and some black rot in potatoes shipped from Rupert in southern Idaho. Certain lots were said to be much more badly affected than those noted.

In one cellar at Fruitland, one lot of Bliss contained very small tubers, many of which were germinating profusely; they appeared much like witches'-broom and formed small tubers on the shoots. This lot is of special interest inasmuch as in the field from which the tubers came a disease was present that was not identified certainly.

Eastern Idaho. March 10 was spent inspecting potato storage cellars and sorters in the vicinity of Aberdeen. In general more rot was present than is regarded as normal. The causes of the various types of rot have not been identified with certainty. Jelly end, shell rot, black rot, and powdery dry rot are common terms used for the rots that occur most frequently. Rots following wounds are very common. On March 11 potato cellars and sorters were visited at Aberdeen, Sterling, and Liberty. Traces of bacterial ringrot [Corynebacterium sepedonicum] were found in 2 lots. Wound rots were very common and in many cases accounted for most of the loss. Frost damaged potatoes had for the most part been sorted out. Green-end potatoes constituted considerable cullage in many lots and jelly end was common. In 2 lots the tissue near the jelly end in some tubers showed a green coloration; this was the first time this condition had been noted.

In potatoes examined as they arrived at a starch factory, March 13, culls originated in many different lots from many areas and showed all sorts of defects. Black rot was the principal rot noted and jelly end was common. The usual storage troubles were noted in sorting operations observed at 2 other warehouses in Blackfoot and, in addition, silver scurf [Spondylocladium atrovirens] was rather prevalent.

Only a trace of black rot, and of powdery dry rot [? Fusarium trichothecioides], was found in a cellar visited near Ucon March 14. At a dehydrator tubers showed very conspicuous defects after they were peeled. One tuber was found with typical rootknot [Heterodera marioni] injury, and black rot was common.

On March 15 potatoes were examined at another dehydrator plant at Idaho Falls and in 12 other cellars and processing plants at Lewisville, Roberts, Menan, and Plano. Certain lots showed severe frost damage with all kinds of secondary rots prevalent; some lots were almost free from defects; others showed extensive jelly-end rot. A few tubers showed what appeared to be typical Fusarium eumartii [F. solani f. eumartii] rot. Of special interest was the failure to find any more than a trace of vascular discoloration typical of Fusarium wilt (F. oxysporum), even though the fields in which many of the lots examined originated were reported to have yellowed and died early from this disease. Scab [Actinomyces scabies], Rhizoctonia [solani], and silver scurf were very prevalent in some lots. Silver scurf was much more common than had been recognized previously; it was interesting to note that infection showed a high correlation with ill-shaped and small tubers. A high percentage of tubers in one lot at Menan showed smooth rather than russet skins; the dealer stated that the condition was due to alkali soils on scraped spots in the fields.

The most prevalent storage disease noted in cellars and potato warehouses at Parker, St. Anthony, Chester, and Ashton, March 16, was black rot, which in some cases was causing extensive losses. Its occurrence was most frequently associated with mechanical injuries.

On March 17, 4 cellars were visited at Moody Creek, Teton, and Newdale. In part of this area the tubers were very small because of a severe freeze in mid-July. The tubers were keeping quite normally except for some that showed field frost. One particular lot showed a preponderance of a type of rot that is fairly common but usually found only in traces, a true shell rot with a brown to black breakdown of tissue resembling melted cheese. The cause is not known. Traces of scab were noted and black rot was common.

In some sections of eastern Idaho there is considerable concern about the increase in amount and extent of damage due to the rootknot nematode. This is a serious problem and special attention should be given to possible control measures. At present, the nematode can easily be carried in seed to uninfested farms and possibly to uninfested areas. In some cases reported diseased seed had been planted.

On March 20 all the potato storage cellars in the Malad Valley were examined. A considerable amount of field frost damage was seen. The scarcity of jelly end was striking. Black rot was noted commonly. Several of the growers commented on the general early dying of vines in their fields last season (1943).

In a new large cellar at Arimo March 21, extreme field frost damage and severe storage rots were noted. Besides the wet soft rot accompanying the frost injury, black rot was very severe.

Several cellars were examined at Tyhee, Fort Hall, and North Pocatello. In this area rootknot is severe and appears to be spreading rapidly; apparently it is one of the most important problems. Several growers expressed alarm about its seriousness and asked about possible control meas-

ures. Jelly end was very prevalent in one cellar, probably half of the tubers being affected.

Southern Idaho. Potato cellars were examined at Burley and Oakley March 22. A considerable amount of black rot was noted at Oakley. A very interesting situation exists at Oakley: potatoes grown on a light-color soil, which comprised about 1/5 of the acreage in 1943, rot early in the storage season and in order to save the crop early marketing (by December) is necessary. Potatoes grown on the black type soil apparently keep normally. No difference in either yield or type of tuber is noticed.
EMERGENCY PLANT DISEASE PREVENTION PROJECT.

NEMATODE SURVEY IN GEORGIA

A. L. Taylor

During the period April 24-29 crops in the vicinity of Savannah and Claxton, Georgia, were examined. Near Savannah, potatoes were about half-grown, lettuce was being harvested, and truck crops were in the early stages of growth. Near Claxton, tomato plants were being packed for shipment.

In this region, weather conditions for the past 2 months have been very unfavorable. A succession of heavy rains has made it impossible to do the normal amount of work in the fields. Plantings in poorly drained fields have been greatly damaged by standing water and other plantings have been partly washed out.

In the Savannah area, only a trace of infection by the rootknot nematode, Heterodera marioni, could be found on potato roots in the fields. No damage from this cause was observed in a fairly extensive search.

Lettuce in the Savannah area also had only a trace of rootknot with no apparent damage.

In the Claxton area tomato plants were examined in the field and at the packing houses. Rootknot infection was found in only one field of the 10 examined. In this field, it was estimated that about 10% of the plants were lightly infected. No rootknot was found in other fields examined or in plants being packed.

In accordance with the requirements of the State Board of Entomology for certified tomato plants, all plants in this section are grown on fields that have not been used for crops highly susceptible to rootknot for at least 2 years. Most of the fields examined had been planted to peanuts or to corn and velvet beans in preceding years. It is probable that considerable infection is avoided by growing the plants before the soil becomes warm enough for nematode activity.
EMERGENCY PLANT DISEASE PREVENTION PROJECT.

OUTBREAK OF POTATO LATE BLIGHT IN LOUISIANA

Douglas C. Bain

Late blight (Phytophthora infestans) of potato is, at present, (week ending May 6), the most outstanding disease of any crop plant in Louisiana. A cool, wet spring has been favorable for the development and spread of the pathogen. Presumably, the fungus does not oversummer or overwinter in the potato areas of this State and it is assumed, therefore, that it came in on seed potatoes. The disease was first observed in 3 fields the week of April 4 to 10 in the middle or lower part of Lafourche Parish. Since then, severe outbreaks have occurred in several parishes and the damage caused is believed to be considerable. A large field without at least a trace of blight is hard to find. Mr. A. N. Moreau, County Agent of Lafourche Parish, estimated that over 800 acres of potatoes have been destroyed in his parish. In the same place a few cars of potatoes have had to be reloaded one or more times because of rotting. Recent outbreaks have been observed in Terrebonne, Lafourche, Pointe Coupee, Avoyelles, East and West Baton Rouge, and Tangipahoa Parishes. This appears to be the worst late blight year Louisiana has experienced.

It was interesting to note that in the parishes (Avoyelles, St. Landry, Lafayette, and Iberia) west of the Atchafalaya River, there was no apparent damage due to late blight. Observations here were made from highways adjacent to the fields because heavy and continuous rains prevented close-at-hand surveys. In other areas where the disease was severe, the infected or damaged plants could be seen at a distance.
EMERGENCY PLANT DISEASE PREVENTION PROJECT.

OTHER REPORTS ON DISEASES OF POTATO AND TOMATO

CONDITION OF POTATO PLANTINGS IN THE NORFOLK AREA OF VIRGINIA: In the vicinity of Norfolk the writer was accompanied by Dr. G. K. Parris and Mr. H. W. Ridgway. Potatoes had, in many cases, been replanted twice. Extensive replanting was still in progress (April 25). This was at least one month later than normal planting dates in this district (Princess Anne County). Extensive seedpiece rot had occurred in the wet soil. -- Carlton F. Taylor, Emergency Plant Disease Prevention Project.

POTATO DISEASES IN EAST TEXAS: East Texas has numerous small acreages of potatoes. During April, virus diseases were observed in many fields, and were most prominent in fields planted with the home-grown seed. Mild mosaic, crinkle mosaic, spindle tuber, and leafroll were seen, the crinkle mosaic being the most common. Near Lindale, Rhizoctonia solani had caused slight damage in one field. -- George E. Altstatt, Emergency Plant Disease Prevention Project.

POTATO PLANTING IN COLORADO: Growers have started to plant potatoes at Olathe. Most of the area will be planted with Colorado certified (blue

tag) Cobbler and Bliss Triumph seed. The seed appeared to be in excellent condition and no evidence of bacterial ringrot was found. Practically all of the seed planted in this area is cut by the Potato Cooperative, and automatic knives disinfected with boiling water are being used. -- E. W. Bodine, Emergency Plant Disease Prevention Project. Week ending April 29.

TOMATOES IN VIRGINIA: The tomato section near Warsaw in Richmond County on the Northern Neck was visited on April 27. These growers obtain their plants from Georgia at this season. Several million plants, mostly certified, had been obtained and other than some evidence of rough handling, were in excellent condition. No shortage of supply had been encountered. Most of the plants seen were from the Tifton, Georgia, area.

According to Dr. G. K. Parris of the Virginia Truck Experiment Station at Norfolk, post-emergence damping-off, probably due to Rhizoctonia [solani], killed 10% of the plants in one greenhouse. This house was very warm. In a seed treatment test in the same house no damping-off was found, even on untreated plots. On April 24 1% of the Bounty tomato plants from a seedbed were found to bear Alternaria [solani] stem cankers with a trace of Alternaria spots on the older leaves. -- Carlton F. Taylor, Emergency Plant Disease Prevention Project.

EARLY BLIGHT ON TOMATOES IN MISSISSIPPI: Early blight (Alternaria solani) appears to be generally distributed on lower leaves of tomato plants throughout the Hazelhurst-Crystal Springs area in Copiah County. There has been no apparent damage. Spring in this section has been unusually wet. -- Douglas C. Bain, Emergency Plant Disease Prevention Project. April 24 - 29.

TOMATO DISEASES OBSERVED IN TEXAS DURING APRIL: (Late blight, on potato and tomato, was reported in the preceding issue). In the Lower Rio Grande Valley, Fusarium wilt (F. bulbigenum var. lycopersici) [F. oxysporum f. lycopersici] was observed in most fields, but only one planting had suffered much damage. In this case, 10% of the plants were severely infected, and would not be able to produce fruit. Southern blight (Sclerotium rolfsii) was not common at this time. Only a few plants were observed showing infection by this organism. Stem cankers caused by Alternaria solani were observed in one field north of Mission. The cankers were present on the plants when first observed in late February, and had spread in this field during March. Sunscald (non-parasitic) was observed after the first picking had been made. Both fruits and leaves left exposed were affected.

In East Texas tomato plants were in good condition, although only part of the crop had been set in the field. No foliage nor root diseases were observed at this time. -- George E. Altstatt, Emergency Plant Disease Prevention Project.

PYTHIUM CAUSING LOSS OF TOMATO PLANTS IN COLORADO: A commercial carner at Brighton, growing tomatoes for transplants on a large scale, has experienced considerable difficulty due to a disease that appeared in over 200 out of 1300 flats of plants and caused losses in stand ranging from 20 to 50%. From isolations made by W. A. Kreutzer and the writer the causal organism was determined to be a species of Pythium, possibly P. ultimum.

Explanations for the severe attack are (1) inadequate soil sterilization and preparation, and (2) overwatering. -- E. W. Bodine, Emergency Plant Disease Prevention Project. Week ending May 6.

OTHER REPORTS ON DISEASES OF VEGETABLE CROPS

BEAN MOSAIC IN MISSISSIPPI AND LOUISIANA: Bean mosaic (virus) was found in one 3-acre field of Black Valentine near Terry, Hinds County, Mississippi. An estimated 25% of the plants were infected (April 24 to 29).

In Louisiana, a small percentage of mosaic was noted in a few fields near Hammond in Tangipahoa Parish (May 1 to 6). -- Douglas C. Bain, Emergency Plant Disease Prevention Project.

DISEASES OF CABBAGE AND KALE IN VIRGINIA: On cabbage in field plantings observed in the vicinity of Norfolk (April 25), downy mildew (Peronospora parasitica) was present on most of the lower leaves, but had caused little apparent injury.

The following supplementary information on diseases observed during the winter in the Norfolk area was furnished by Dr. G. K. Parris of the Virginia Truck Experiment Station. In a small area in a coldframe all the cabbage plants were affected by downy mildew. Application of copper-lime dust and fertilization induced rapid development of new leaves and saved the plants. The old infected lower leaves still remain.

In general, the occurrence of bacterial diseases of crucifers has been remarkably low.

Downy mildew developed on seed-stock kale during the middle of March. This caused the loss of from 5 to 10% of the leaves and probably reduced production of seed. In the opinion of Dr. H. H. Zimmerley of the Norfolk Station, this was the most severe attack of this disease he had ever observed in this district. Wet weather contributed to this epiphytotic. -- Carlton F. Taylor, Emergency Plant Disease Prevention Project

ONION DISEASES IN TEXAS: Purple blotch [Alternaria porri] was observed on onions in a home garden near Jacksonville, April 18.

A sclerotial disease found April 14 on a Crystal Wax onion near Robstown was caused by Botrytis squamosa, as determined by D. A. Preston. -- George E. Altstatt, Emergency Plant Disease Prevention Project.

ONIONS GROWN FOR SEED IN COLORADO: Several hundred acres of onion fields grown for seed (from seed planting) were inspected in Montrose County during the week ending April 29. In most fields the stands were excellent. In some fields stands were somewhat thinned owing to winter injury to the larger bulbs. All fields inspected were free from diseases when examined. -- E. W. Bodine, Emergency Plant Disease Prevention Project,

ONION FIELD ROT IN IDAHO: A considerable loss in stand was noted in fields of fall-set onions near Boise, March 24. Although the onions had

rooted, many were puffy and rotting when examined. Botrytis seemed to be involved in many cases. -- Earle C. Blodgett, Emergency Plant Disease Prevention Project.

POWDERY MILDEW ON PEAS IN LOUISIANA: Although the peak of production appears to be past, considerable damage caused by powdery mildew (Erysiphe polygoni) is evident in gardens throughout southern Louisiana. -- Douglas C. Bain, Emergency Plant Disease Prevention Project. May 1 - 6.

DISEASES ON SPINACH IN THE NORFOLK AREA OF VIRGINIA: Dr. G. K. Parris, of the Virginia Truck Experiment Station, has supplied the following information. Spinach blue mold [downy mildew, Peronospora effusa] was found March 29 causing appreciable damage in 2 acres of a 40-acre field. Approximately 5% of the plants showed symptoms of systemic infection and were serving as focal points of infection. This field was fertilized to promote rapid growth and harvested promptly.

Heterosporium variabile was present and causing damage throughout the area. This disease was favored by poor growing conditions, principally wet weather. -- Carlton F. Taylor, Emergency Plant Disease Prevention Project.

SPINACH DISEASES IN TEXAS: Late spinach in a small commercial acreage just south of Dallas showed slight infection of white rust (Albugo occidentalis), observed May 1. This disease was also found at Temple.

Pin point rust (Heterosporium variabile) was found on old spinach at Jacksonville, April 18. -- George E. Altstatt, Emergency Plant Disease Prevention Project.

PHYTOPHTHORA ROOT ROT OF SPINACH IN CALIFORNIA: One small low area of approximately 1/4-acre in a field of spinach near Rio Vista in Solano County showed symptoms of root rot. The plants were dwarfed and yellowed. The tap roots were rotted off about 2 inches below the surface of the soil and some showed dark necrotic lesions. The symptoms were very similar to those of the root rot of spinach reported last winter (PDR 28(4/5): 127, Feb. 15/Mar. 1; and (8):320, Apr. 27, 1944) from the Salinas Valley. Water cultures from the Rio Vista material yielded a Phycomycete with the characteristic sporangia of Phytophthora. On the basis of symptoms, it is assumed that this is the same species (P. megasperma) as that isolated from the Salinas material. -- Horace L. Barnett, Emergency Plant Disease Prevention Project. Week ending April 22.

ROOTKNOT IN THE NORFOLK AREA OF VIRGINIA: Severe rootknot (Heterodera marioni) infection was present in one large field of parsley observed April 25 with Dr. G. K. Parris and Mr. H. W. Ridgway of the Virginia Truck Experiment Station. With fertilization and moisture the plants had made good growth.

According to Dr. Parris, celery plants sufficient to set 5 acres purchased from a Florida plant grower had a heavy infection of the nematode.-- Carlton F. Taylor, Emergency Plant Disease Prevention Project.